

### **Amendments to the Claims**

Claim 1 (**Currently Amended**) A waste gas treatment system comprising:

a burner part; and

a combustion chamber provided at a downstream side of said burner part, wherein combustion flames are formed from said burner part toward said combustion chamber and a waste gas is introduced into the combustion flames, thereby oxidatively decomposing the waste gas, ~~and~~

wherein said combustion chamber has an inner wall made of a fiber-reinforced ceramic material comprising ceramic cloth coated with a binder-containing ceramic material, and

wherein said burner part has a cylindrical member having a side wall, being closed at a top thereof and having an opening at a bottom thereof, said cylindrical member also having a waste gas inlet in said top thereof and an air nozzle at a predetermined position on said side wall, said cylindrical member further having an auxiliary burning gas nozzle in said side wall in a vicinity of the opening, said air nozzle and said auxiliary burning gas nozzle extend at predetermined angles to a tangential direction to said cylindrical member to blow a swirling air flow and a swirling auxiliary burning gas flow downward against the combustion flames formed downward below the opening.

Claim 2 (**Previously Presented**) A waste gas treatment system according to claim 1, wherein said combustion chamber further comprises an outer wall and a thermal insulator made of a porous ceramic material located between said inner wall and said outer wall.

Claim 3 (**Previously Presented**) A waste gas treatment system according to claim 2, wherein said inner wall and said outer wall have a space therebetween, and said waste gas treatment system further comprises purge gas supply means to maintain the space under a purge gas atmosphere of higher pressure than a pressure in said combustion chamber.

**Claim 4 (Currently Amended)** A waste gas treatment system comprising:

a burner part;

a combustion chamber provided at a downstream side of said burner part, wherein combustion flames are formed from said burner part toward said combustion chamber, and a waste gas is introduced into the combustion flames, thereby oxidatively decomposing the waste gas;

an auxiliary burning gas inlet part; and

cooling means for cooling said auxiliary burning gas inlet part,

wherein said burner part has a cylindrical member having a side wall, being closed at a top thereof and having an opening at a bottom thereof, said cylindrical member also having a waste gas inlet in said top thereof and an air nozzle at a predetermined position on said side wall thereof, said cylindrical member further having an auxiliary burning gas nozzle in said side wall in a vicinity of the opening, said auxiliary burning gas nozzle having an auxiliary burning gas introduced therein by said auxiliary burning gas inlet part, and

wherein the waste gas introduced from said waste gas inlet and air blown from said air nozzle are mixed together, and the auxiliary burning gas blown from said auxiliary burning gas nozzle is ignited to form combustion flames downward below the opening, and

wherein said air nozzle and said auxiliary burning gas nozzle extend at predetermined angles to a tangential direction to said cylindrical member to blow a swirling air flow and a swirling auxiliary burning gas flow downward against the combustion flames formed downward below the opening.

**Claim 5 (Previously Presented)** A waste gas treatment system according to claim 4, wherein said auxiliary burning gas inlet part is an auxiliary burning gas chamber provided at an outer periphery of said cylindrical member, said auxiliary burning gas nozzle is provided in an inner side portion of said auxiliary burning gas chamber so as to blow the auxiliary burning gas toward a central portion of said combustion chamber, said waste gas treatment system further comprises a cooling jacket provided at a boundary between said auxiliary burning gas chamber and said combustion chamber, and said cooling means is arranged to cool said auxiliary burning gas chamber by supplying a cooling medium to said cooling jacket.

**Claim 6 (Previously Presented)** A waste gas treatment system according to claim 4, wherein said auxiliary burning gas inlet part is an auxiliary burning gas chamber provided at an outer periphery of said cylindrical member, said auxiliary burning gas nozzle is provided at a bottom of said auxiliary burning gas chamber so as to blow the auxiliary burning gas toward a central portion of said combustion chamber, said waste gas treatment system further comprises a cooling jacket provided either adjacent to said auxiliary burning gas chamber or at an outer periphery of said auxiliary burning gas chamber, and said cooling means is arranged to cool said auxiliary burning gas chamber by supplying a cooling medium to said cooling jacket.

**Claim 7 (Previously Presented)** A waste gas treatment system according to claim 4, wherein said auxiliary burning gas inlet part is an auxiliary burning gas inlet pipe having said auxiliary burning gas nozzle provided at a distal end thereof, said waste gas treatment system further comprises a cooling jacket provided at an outer periphery portion at a lower end of said cylindrical member, said auxiliary burning gas inlet pipe extends through said cooling jacket so that the auxiliary burning gas blows from said auxiliary burning gas nozzle toward a central portion of said combustion chamber, and said cooling means is arranged to cool said auxiliary burning gas inlet pipe by supplying a cooling medium to said cooling jacket.

**Claim 8 (Previously Presented)** A waste gas treatment system according to claim 4, wherein said auxiliary burning gas inlet part is an auxiliary burning gas inlet pipe having said auxiliary burning gas nozzle provided at a distal end thereof, said auxiliary burning gas inlet pipe being installed at an outer peripheral portion at a lower end of said cylindrical member so that the auxiliary burning gas blows from said auxiliary burning gas nozzle toward a central portion of said combustion chamber, said waste gas treatment system further comprises a cooling jacket provided at an outer periphery of said auxiliary burning gas inlet pipe, and said cooling means extends through said cooling jacket so as to cool said auxiliary burning gas inlet pipe by supplying a cooling medium to said cooling jacket.

Claim 9 (**Previously Presented**) A waste gas treatment system according to claim 4, wherein the cooling medium is one of water, air, other liquids and other gases.

Claim 10 (**Currently Amended**) A waste gas treatment system comprising:

a burner part;

a combustion chamber provided at a downstream side of said burner part, wherein combustion flames are formed from said burner part toward said combustion chamber, and a waste gas is introduced into the combustion flames, thereby oxidatively decomposing the waste gas; and

a dust remover provided to remove dust from at least one of an inner wall of said burner part and an inner wall of said combustion chamber or to prevent adhesion of dust thereto,

wherein said dust remover comprises a dust scraping plate secured to ~~a distal end of~~ a shaft ~~adapted to move~~ so as to be moved vertically during operation in said at least one of said burner part and said combustion chamber.

Claim 11 (**Canceled**)

Claim 12 (**Previously Presented**) A waste gas treatment system according to claim 10, wherein said dust remover further comprises an air injection nozzle operable to form a layer of air stream along at least one of an inner wall surface of said burner part and an inner wall surface of said combustion chamber so that the layer of air stream prevents dust from adhering to said at least one of said inner wall surface of said burner part and said inner wall surface of said combustion chamber.

Claim 13 (**Previously Presented**) A method of operating the waste gas treatment system according to claim 12, said method comprising forming the layer of air stream along said at least one of said inner wall surface of said burner part and said inner wall surface of said combustion chamber with said air injection nozzle, said forming of the layer of air stream comprising continuously or intermittently injecting air from said air injection nozzle.

Claims 14-18 (**Canceled**)

**Claim 19 (Currently Amended)** A waste gas treatment system comprising:

a burner part; and

a combustion chamber provided at a downstream side of said burner part, wherein combustion flames are formed from said burner part toward said combustion chamber, and a waste gas is introduced into the combustion flames, thereby oxidatively decomposing the waste gas, and wherein

said burner part has a cylindrical member having a side wall, being closed at a top thereof and having an opening at a bottom thereof, said cylindrical member also having a waste gas inlet in said top thereof and an air nozzle at a predetermined position on said side wall thereof, said cylindrical member further having an auxiliary burning gas nozzle in said side wall in a vicinity of the opening, said air nozzle and said auxiliary burning gas nozzle extend at predetermined angles to a tangential direction to said cylindrical member ~~being arranged~~ to blow a swirling air flow and a swirling auxiliary burning gas flow downward against the combustion flames formed downward below the opening as a result of ignition of an auxiliary burning gas injected from said auxiliary burning gas nozzle.

**Claim 20 (Previously Presented)** A waste gas treatment system according to claim 19, wherein said air nozzle is provided such that a center line of said air nozzle is close to a tangent to an inner wall surface of said cylindrical member that is parallel to the center line so that air will not stagnate at said inner wall surface.

**Claim 21 (Previously Presented)** A waste gas treatment system according to claim 19, wherein said air nozzle and said auxiliary burning gas nozzle are provided close to each other so that dust present between said air nozzle and said auxiliary burning gas nozzle can be blown away with air blown from said air nozzle.

**Claim 22 (Currently Amended)** A waste gas treatment system comprising:

a burner part; and

a combustion chamber provided at a downstream side of said burner part, wherein combustion flames are formed from said burner part toward said combustion chamber, and a waste gas is introduced into the combustion flames, thereby oxidatively decomposing the waste gas, ~~and~~

wherein said burner part has a cylindrical member having a side wall, being closed at a top thereof and having an opening at a bottom thereof, said cylindrical member also having a waste gas inlet in said top thereof and an air nozzle at a predetermined position on said side wall thereof, said cylindrical member further having an auxiliary burning gas nozzle in said side wall in a vicinity of the opening, wherein at least one of an inner diameter of said waste gas inlet and an inner diameter of said cylindrical member gradually increases toward said combustion chamber, and

wherein said air nozzle and said auxiliary burning gas nozzle extend at predetermined angles to a tangential direction to said cylindrical member to blow a swirling air flow and a swirling auxiliary burning gas flow downward against the combustion flames formed downward below the opening.

#### Claims 23-36 (Canceled)

**Claim 27 (Previously Presented)** A waste gas treatment system according to claim 20, wherein said air nozzle and said auxiliary burning gas nozzle are provided close to each other so that dust present between said air nozzle and said auxiliary burning gas nozzle can be blown away with air blown from said air nozzle.